REMARKS

Claims 42-55 were rejected as obvious over Funk and Ohno (both of record). To better focus the application for advancement on its merits, Applicant cancels claims 42-55 and replaces them with a consolidated set of claims, numbered 56-67. The new claims include one independent apparatus claim (56), and one independent method claim (62).

The subject matter of the new claims is consistent with that presented in the previous set of claims, and the new claims add no new matter. As a non-limiting example of direct support for the new claims, the examiner is kindly referred to the filed application at p. 17, line 14 – p. 18, line 7, as reproduced below:

> According to yet another exemplary embodiment of the present invention, the mobile station can directly adjust its transmit power rather than indirectly adjusting transmit power by varying its transmission rate. A method according to this exemplary embodiment is depicted as FIG. 5. Therein, the temperature T_m is measured at step 500. If the measured temperature is less than a threshold temperature (step 502), then the mobile station continues to transmit at a current power level.. Otherwise, if, for example, the mobile station is beginning to overheat, the mobile station reduces its transmit power by 0.5 dB, at step 506. If the system determines that its received signal quality on the uplink is too low, e.g., due to the mobile station's transmit power reduction, then it can send a transmit power control command to the mobile station ordering the mobile to increase its transmit power. If this occurs, then the mobile station may then increase its transmit power and reduce its transmission rate in accordance with any of the foregoing exemplary embodiments, e.g., sending a message requesting (or informing) the system of the reduced transmission rate.
>
> As yet another alternative, when a temperature threshold is exceeded, the mobile station could perform both transmit power reduction and transmission rate reduction in order to reduce its operating temperature. That is, for example, the mobile station

> could transmit in fewer timeslots and with lower power to reduce its total transmit power. Consider FIG. 6, wherein exemplary relationships between the transmit power per bit, bit rate and total transmit power are illustrated. Therein, it can be seen that to reduce the total transmit power from nine units to four units, various approaches could be adopted to move from the TX Power=9 curve to the TXPower=4 curve. The mobile station could just reduce its bit rate, could just reduce its transmit power per bit or could reduce some combination of bit rate and power per bit.

The examiner is also referred to the total power curve discussed on p. 18 of the filed application, as shown by way of example in Fig. 6 of the filed application.

New claims 56-67 are not obvious over Funk and Ohno

Funk discloses a mobile radio device that includes a radio transmitter, wherein the transmitter temperature is monitored and transmission power of the radio device is reduced by reducing the power level and/or by inserting brief pauses in a Supervisory Audio Tone (SAT) transmitted by the radio device when it is not transmitting data. See Funk's Abstract. Funk also teaches that its transmit power reductions are not so extensive as to affect transmission reliability. Again, see Funk's Abstract. Where the Office Action's rejection arguments mention that Funk teaches inserting brief pauses during transmission (col. 4, lines 29-41 of Funk), such teachings appear to teach SAT transmission pauses, which are not transmission data rate adjustments.

For transmission data rate adjustment teachings, the rejection arguments look to Ohno. Ohno discusses "prior art" control to reduce the interior temperature of a remote station, based on turning off supply power when the remote station is not transmitting or receiving (col. 1, lines 60-67). Ohno notes that power cannot be turned off during active transmission or reception, and discusses the prior art use of a fan to provide cooling during such times. In view of that fan usage, Ohno appears to offer as its improvement, the reduction of transmit data rates during

active transmission, to reduce TDMA burst transmission times and thereby lower the temperature without need for a fan or other extra parts. See Ohno at col. 5, lines 42-67.

In contrast, the previous and new claims are directed to reducing the temperature of a transmitter by, in response to determining that a measured temperature of the transmitter exceeds a temperature threshold, reducing an average power consumption of the transmitter by a controlled amount, by adjusting a transmit power per bit of the transmitter in combination with adjusting the transmission data rate of the transmitter. (Emphasis added.) In particular, the preceding limitation is found in each of the new independent claims 56 and 62, and Applicant believes that the controlled reduction in average transmit power based on a combined adjustment to transmit power per bit and transmission data rate is not taught or suggested by the argued for combination of Funk and Ohno.

For example, Funk explicitly teaches that its power reductions are not so extensive as to affect transmit reliability, which would seem to teach away from the idea of making compensating data rate adjustments. Further, on that point and as regards the Office's attempted combination of Ohno with Funk, Ohno appears to use the same transmit power level, irrespective of data rate. See, e.g., the latter part of col. 5 in Ohno, where Ohno discusses the use of different defined coding rates to alter the length of its TDMA transmission bursts. It appears that the changed burst length, rather than any adjustment to transmit power level achieves the power reduction.

In particular, see Ohno at the bottom of col. 5, where it appears to state that its transmission power is at a maximum for active transmissions, and see the top of col. 6, where Ohno attributes the power reduction to shorted TDMA bursts. Properly understood, it would appear that these sections of Ohno's disclosure teach away from the combined adjustment of transmit power per bit and transmission data rate, as claimed. At a minimum, it does not appear that the combination of Funk with Ohno teaches the limitations of claim 56 as follows:

56. A transceiver in a radio communication system comprising:

a transmitter for transmitting data over an air interface at a transmission data rate;

a temperature measuring device for determining a temperature of said transmitter; and

a processor coupled to said transmitter and said temperature measuring device and

configured to, in response to determining that a measured temperature exceeds a temperature threshold, reduce an average power consumption of the transmitter by a controlled amount, by adjusting a transmit power per bit of the transmitter in combination with adjusting the transmission data rate of the transmitter.

(Emphasis added.)

Substantially the same limitation appears in independent method claim 62. Applicant therefore submits that claim 62 is not obvious over Funk and Ohno, for at least the same reasons.

Further, the dependent claims add additional limitations not taught or suggested by Funk and Ohno. For example, claim 58 stipulates that the processor of claim 56 is configured to reduce the average power consumption of the transmitter by a controlled amount, by determining a combination of transmit power per bit and transmission data rate adjustments that adjust the average power consumption of the transmitter to a desired point on a total transmit power curve. An example of the claimed power curve is discussed on p. 18 of the filed application, and shown in Fig. 6.

As illustrated and described, the average power of the transmitter—also referred to as "total transmit power" in the filed application—is shown having a current value of 9 units, where a value of 4 units on the power curve is desired. By adjusting the transmit power per bit, which is understood to be the (instantaneous) transmit power level of the transmitter, in combination with adjusting the transmission data rate of the transmitter, the described power control method

moves the average transmit power of the transmitted along the power curve, to the 4 units position. Claim 58 is not taught or suggested by Funk and Ohno, nor is its corresponding method claim 64.

Regarding claim 59, it stipulates that the processor (of claim 56) is configured to reduce the average power consumption of the transmitter by decreasing the transmit power per bit of the transmitter and, in response to then receiving a transmit power control command ordering the transceiver to increase its transmit power, increasing the transmit power per bit of the transmitter as commanded, in combination with decreasing the transmission data rate of the transmitter. Example support for this claim appears on p. 17 of the filed application, wherein a coordinated adjustment of transmit power per bit and transmission data rate is made in response to lowering the transmit power per bit, and then receiving an ordered increase in transmit power. Funk and Ohno do teach or suggest the limitations of claim 59, nor its corresponding method claim 65, nor the further limitations of claim 60 (depending from claim 59) and claim 66 (depending from claim 65).

Finally, dependent claim 61 depends directly from claim 56 and it stipulates that the processor is configured to reduce the average power consumption of the transmitter by determining a combination of reductions in the transmit power per bit of the transmitter and the transmission data rate of the transmitter. Funk does not teach transmission data rate adjustments, and can be understood as teaching limitations on transmit power adjustments, so as to avoid transmission reliability problems, while Ohno does not appear to teach adjusting transmit power per bit, but rather to focus on reducing TDMA burst length durations through data coding rate adjustments. As such, the combination of Funk and Ohno does not teach or suggest the combined adjustments of claim 61, nor those in the corresponding method claim 67.

Closing

The amendments included herein are believed to focus the claims in a manner that simplifies the issues and thereby facilitates their advancement on the merits. Applicant believes that all claims pending after entry of the above amendments (56-67) stand in condition for allowance over the cited references, and looks forward to the examiner's reconsideration as such.

Respectfully submitted,
COATS & BENNETT, P.L.L.C.

Dated: 1 July 2009

Michael D. Murphy
Registration No.: 44,958
Telephone: (919) 854-1844
Facsimile: (919) 854-2084